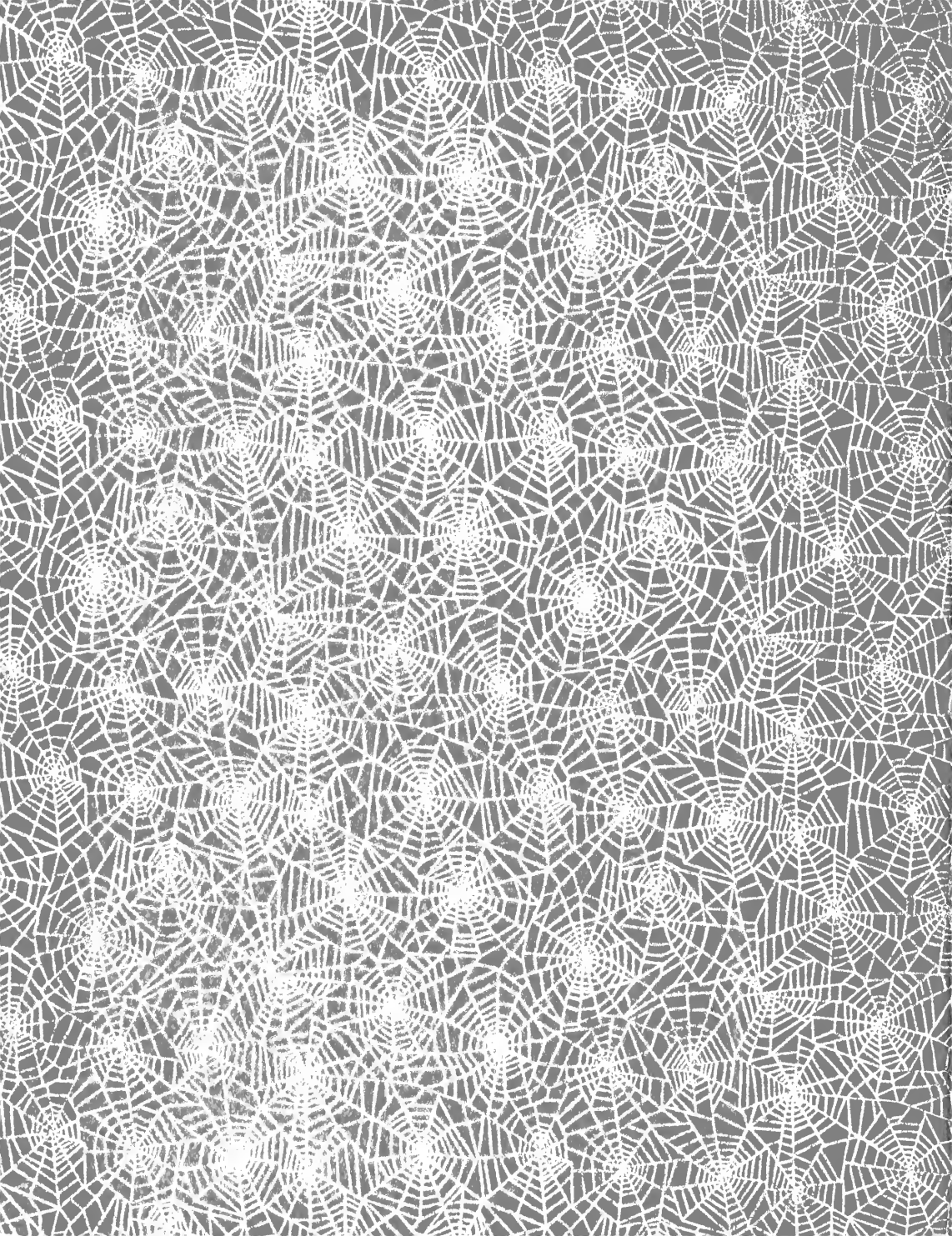
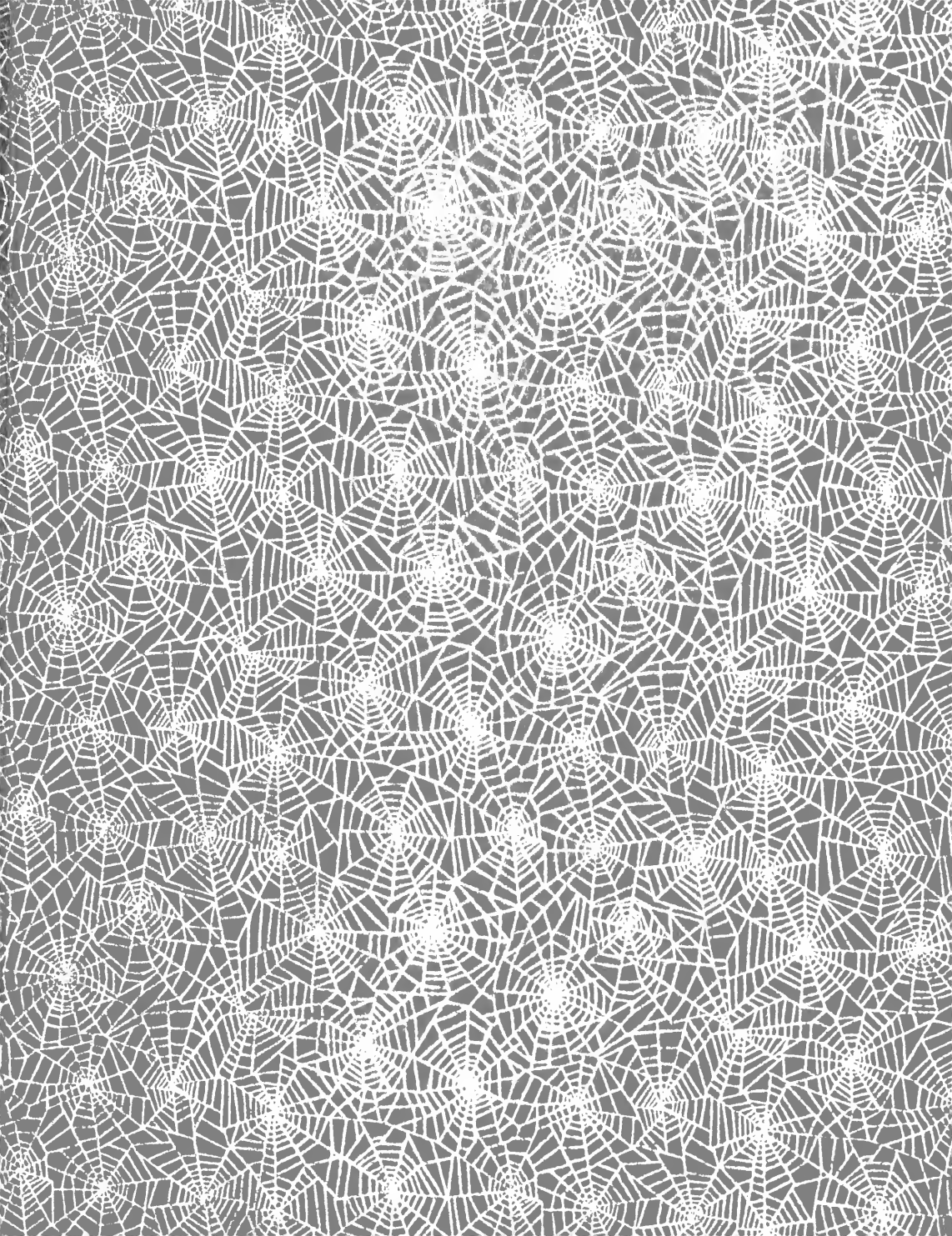


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DECEMBER 1972

The Ohio UNIVERSITY ALUMNUS Magazine



This
Noisy
World

The Ohio University Alumnus Magazine is produced by the Office of University Publications; *director*, Don F. Stout '51; *magazine editor*, Patricia Black; *designer*, Paul Bradford; *photographer*, Harry Snively '51; *contributing editor*, Jo Anne Calderone.

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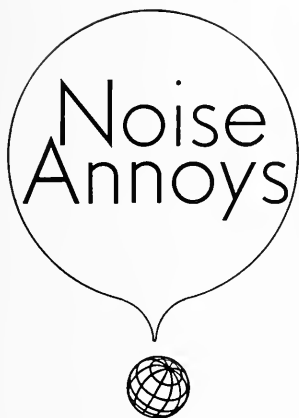
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December 1972.
Number 1

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University professors are typically thought of as sitting in their ivory towers, surrounded by books and disturbed by no sounds louder than the occasional rustle of a turning page or the scratch of a pen across paper. How is it, then, that two members of the Ohio University faculty are often to be found right in the middle of the hum and whirr of factories throughout southeastern Ohio? Perhaps the key is in the words "hum and whirr." If factory noise were limited to that, Ronald Isele and Jon Shallop, one an instructor and the other an associate professor in hearing and speech sciences and both extremely concerned about the effect of excessive noise on human hearing, would be tucked away in their towers. But as industrial mechanization has increased the noise has gotten noisier and, as a sign over Shallop's office door reads, "Noise annoys."

Actually, noise does more than annoy. It is a health hazard not only to the ears, but also to the heart and blood vessels. It affects the output of hormones by glands, the secretion of acid by the stomach and the ability of the eyes to focus. Furthermore, it is an irritant to the nerves and emotions because it disrupts thought and concentration.

Noise, as the word is used here, means any unwanted sound. In considering its effects upon the human body two qualities are pertinent: frequency and pressure. Frequency is the number of vibrations or cycles per unit of time. It is measured as cycles-per-second and expressed as *Hertz* (named for the 19th century physicist Heinrich Rudolph Hertz and abbreviated Hz). The higher the frequency, the higher the sound—a whistle, the highest we can hear, is about 20,000 Hz, the lowest about 15 Hz.

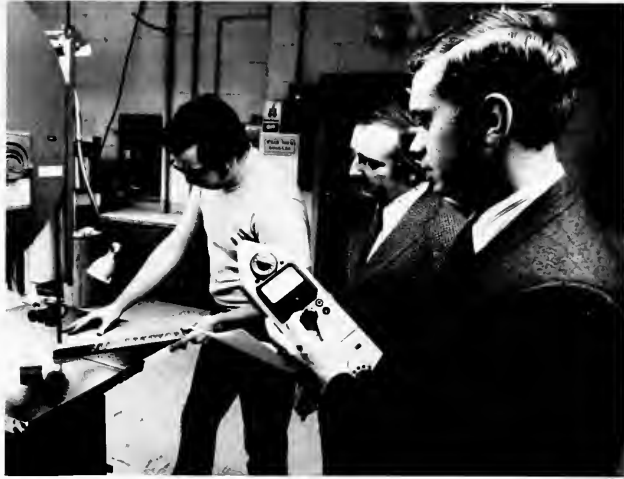
The pressure of sound is measured in units called *decibels* (abbreviated dB and equalling one-tenth of a *bel*—named after Alexander Graham Bell). The bottom of the decibel scale is 0 dB and is the very threshold of human hearing. At this level would be whispers or that rustle of pages in the ivory tower. By the time the sound pressure level has reached 120 dB, the sound of a rocket engine or a jet plane, it is at the threshold of pain and near the top of the human range. Because the ear can accommodate such an enormous acoustic range the decibel scale must be logarithmic rather than linear. This means that 20 dB is a hundred times greater than the sound pressure of 1 dB.



Though the ear is geared to hear these high-frequency, high-pressure sounds, extended exposure to them causes permanent damage. Sudden loud noises, such as the blast of a shotgun or a cap pistol near the ear, are dangerous. Studies have shown that 85 dBA is the level above which noise poses a serious threat.

One great difficulty arises from the fact that the ear cannot protect itself against noise. The ear is made up of the cone-shaped eardrum and three tiny bones plus sound-sensitive hair cells. An excessively loud sound enters the ear and sets the sensors to vibrating, damaging them in the process. Sometimes such a noise will only stun the ear which eventually recovers, but repeated abuse will gradually destroy the hearing. If a loud noise is continuous the middle ear muscles contract to block out some sound, but an initial loud impulse enters a completely undefended ear.

It has long been known that factory workers are exposed to high levels of noise and in 1935 Congress passed the Walsh-Healey Act which empowered the Secretary of Labor to enforce safety regulations against companies with federal contracts in excess of \$10,000, in order to ensure a safe working environment. But it was not until the Williams-Steiger Act of 1970 that any regulations were written pertaining to noise. These regulations state that during an eight-hour day an employee should not be exposed to noise levels in excess of 90 dB. If the noise level is greater the employer has three alternatives available to him. One, he could engineer out the problem. This is the most preferred method, to eliminate the noise at its source. The second choice is to administratively control the employee so that he is moved out of the excessive noise field soon enough to avoid risk. For example, if the risk for the noise to which he was exposed was four hours, he would work in that noise field up to four hours and then move to something else and another employee would take his place. The third choice, though the least desirable seems to be the most obvious—to provide some kind of protection for the employee, such as an ear-defender or an earplug. This is the least preferred method because it takes the burden off the employer and puts it on the employee. Many employers make the analogy that if one can wear safety glasses one can wear ear-defenders, but ear-defenders are



not as comfortable to wear as glasses are, particularly where heat is involved.

The Williams-Steiger Act empowered the Department of Labor to enforce regulations concerning the various critical agents that are hazardous to human health. Noise is one of them but it is a medium priority—it doesn't cause death.


The National Institute of Occupational Safety and Health (NIOSH), an arm of the Department of Health, Education and Welfare, develops criteria for the Williams-Steiger Act regulations. NIOSH personnel go into industrial plants and do surveys of noise and hearing loss of the people working in those plants. NIOSH has no authority to write citations for violations of any existing laws and such authority is not wanted. Federal inspectors are, of course, viewed with apprehension because they can cause a great deal of turmoil when they find many things amiss in a factory. But NIOSH only identifies the problem and tries to rectify it. The main interest is the protection of the worker, and the NIOSH documents on noise are very comprehensive, covering the entire aspect of industrial hearing conservation and problems associated with it.

About four years ago, prior to the federal regulations, Shallop and Isele began offering a graduate-level audiology course called Industrial Audiology. The rationale behind the course was to expose students to the problems of noise which they might encounter in a clinical setting rather than restricting their experience to an academic setting. Few of the students will remain in a university. Most of them will go to work for hospitals and community clinics where they will be contacted by industrialists who want to have noise and hearing surveys conducted in their factories. The class is not involved intensively in any kind of service to industry and the service is not advertised, but whenever the University has received a request they have tried to respond to it. It has proved to be a valuable laboratory experience not only for the students, but for the faculty members as well. Shallop commented that he found the actual observation of the factors about which he had only read very enlightening.

In addition to the educational aspects for the students and professors and the service to the industries, the industrial audiology class has been a further service to the community. Because of the wide publicity given the new federal regulations, unscrupulous persons have been exploiting the employers concerned by either charging high fees for the noise survey or by out-and-out industrial piracy. In one instance a man went into a factory and flashed a badge as though he were a Department of Labor inspector. In the course of his inspection of the plant he observed manufacturing processes that were semi-secret and then returned to his real employer—a competitor—and copied the processes.

Shallop and Isele do not offer their services only to industries, they do practice somewhat closer to home. In close cooperation with James Westfall, the University's Director of Environmental Services, they do noise surveys of University areas. Technically, such surveys are not necessary under the Williams-Steiger Act. State agencies are exempted from it and it is up to the individual state to decide whether or not to bring all of its municipal and state institutions into the regulation.

As they do in an industrial situation Shallop and Isele will accompany Westfall or his assistant, Jon Malamatinas, to University sites which are believed to have excess noise. Tests are made with a sound level meter which measures a continuous noise over a period of approximately one-half a second. If these readings show that the machine in question is excessively noisy Shallop, Isele and their students will confer with the area supervisor and, if possible, a plant engineer to determine how the machine may be made to run more quietly or how the noise can be contained. Frequently they determine that either of two machines running side by side, taken individually, does not cause a danger-level noise, but the combined sound is beyond the safety limits. In such a case it is often effective to house one or both machines, making the interior of the housing as sound absorbing as possible. Other times the machine can be adjusted slightly to decrease the force of impact of two moving parts. It is becoming increasingly more common for an industrialist who is purchasing new machinery for his plant to insist that the manufacturer supply a machine that operates within the federal noise limits.

So far, however, the noise surveys can be accurate only on continuous noise, such as the whine of a jet engine. The effect of impulse or impact noise cannot be accurately evaluated. Impulse noise is made by the rapid expansion of gases, as with cap pistols, bursting balloons or rivet guns. Impact noise occurs when two large masses strike together with force, as with a drop forge. Either of these noises occurs too rapidly for the sound-level meter to record. Even when the impact is a series, only an approximation can be gotten by averaging out the peaks of sound. A great deal of work needs to be done in the area of impact and impulse noise in order for the federal government to be able to write working regulations to protect the worker. It is an area in which Shallop and Isele are intensely interested and plan to do extensive research. In the meantime—shhhhh! 

Walk Fast and Avoid Committee Meetings



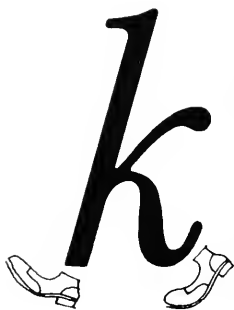
The goal set forth in the title isn't always easy to achieve, particularly if you are involved with institutions and bureaucrats. The motto is that of David Keller, a 1950 graduate of Ohio University who makes his living as a freelance filmmaker, writer and editor. In the years since 1965 when he decided to go from full-time employment and part-time freelancing to full-time freelancing, Keller has run into his fair share of both institutions and their attendant bureaucrats.

Keller chose to forsake the hassle of regular employment because he enjoys the freedom which freelancing gives him. He admits that he works as hard or harder than he did before, but his schedule is his own to determine. He tries to arrange his jobs so they do not interfere with each other but that isn't always possible.

Working in close conjunction with William Sprague, a film editor from Indianapolis, and Robert Young, a cinematographer from the same area, Keller has made approximately 35 films for universities throughout the eastern half of the United States. Such films are used by the universities as student-recruiting tools, as information media to acquaint alumni with current campus life and as entertainment at various "friends-of-the-university" functions. They are usually between 15 and 20 minutes long but they take nearly twice that many *weeks* to prepare.

Recently a new Ohio University film was undertaken by David Keller and Associates. Keller uses the word *Associates* in his title because it increases his flexibility. When he receives a go-ahead on a job, Keller can put together a team of competent professionals, tailor-made for the task at hand. His frequent choice is Bob Young and Bill Sprague.

Sprague, Young and Keller have been working together for several years. Keller and Sprague met when each was hired as an independent on a film. They worked well together and liked each other. Later they were each again hired, this time for a Time-Life documentary film on which Young was freelancing. The three found that they formed a well-synchronized team and have been collaborating ever since.



They started on the latest Ohio University film early in the spring of 1972. They concentrated on candid shots of campus activity. Most of the photography was done outdoors, wherever something interesting was occurring. Keller found that wandering about campus, with one's eyes open for photographable material, leads to astounding discoveries. One day they rounded the rear corner of a building to find two men in full regalia, masks and all, fencing. Another time they happened into the middle of karate practice. They photographed the recession of a wedding in Galbreath Chapel. Passers-by would stop to watch the photographing and inquire into its purpose. Keller would ask where the person was headed and if it sounded interesting, the whole camera crew would trail along, to take pictures in laboratories and studios.

But, in spite of Keller's concerted efforts to avoid such situations, things began to pile up in the fall. There were further shots, both interior and exterior, to do for the Ohio University film and he also had filming to do for a Sohio company film and a film for Baldwin-Wallace University. It seems that everyone wants shots of autumn, with all its color and beauty, but the weather often just won't cooperate. Either the sky is a clear blue and the sun shines brightly while the leaves remain green or the leaves turn to perfection and the weather won't clear enough for photographing. Then when everything finally coordinates, for only the fewest number of days, there isn't time to take all the pictures that are needed. At such times freelancer Keller feels as hassled as he has ever been.

Finally, after all the photography and recording are done, after the professors have returned to their classrooms from lecturing before the cameras and the students have forgotten the film crew was ever on campus, then come the long hours of editing and synchronizing the movie into a whole. At least as much time is spent in the editing room as was spent in the accumulation of material. It is a mark of Keller's skill that the final result is full of spontaneity though every inch of it has been minutely examined and picked over. The result of all the effort is a university film which justifies the reputation David Keller and Associates has acquired for fine creative work.

In spite of recognition of the quality of his work, Keller has found that his choice to live in Athens is a psychological drawback in the minds of prospective clients. Since most of the people who consider themselves shakers and movers in the world of industrial and institutional film production have moved to New York, Chicago, Washington or other large cities, many clients assume that Keller's remaining in Athens means he lacks something vital to the trade. This assumption often takes precedence over strong evidence to the contrary. There was one instance when Keller learned that in the almost unanimous opinion of the company officials who wanted a film made he had submitted the strongest, best-organized, most creative proposal. But when the contract was awarded it went to a city-based agency since the officials felt that was probably the more creative agency, because of its location.

This mental block has not been enough to convince Keller that he should give up the advantages he finds in Athens life. Living in a small town enables him to know most of the people and to be intimately acquainted with the resources available to him. He has found that the Ohio University Library, which is open to the general public, is invaluable to him for research purposes. Furthermore, he knows all the local printers and exactly what they can and cannot do in matters of typesetting, color overlays or whatever needs to be done in the house publications on which he works.

One of Keller's talents lies in the creation of house magazines or newsletters for industry. When a company decides it would like such a publication for its employees, Keller will organize the project, write the articles, work out the design and format, supervise the photography and deal with the printers. However, as he does all this, for the first several issues, he also trains company personnel to take over the procedure. He emphasizes that he is not interested in being a producer of house organs, but he does enjoy creating them. Once he gets one off the ground he prefers to let someone else do the flying.

The production of industrial and institutional films is perhaps of greater interest to him than magazines. One reason might be that each film is an entity in itself and not part of a series. He has produced quite a variety of films, not only for universities but also about them. He wrote the video script and narration for a film, *The New Face of Academe*, for Time-Life Productions. It is a documentary on education at a large university and the campus of Indiana University was the locale. Another film for which Keller wrote the audio and video scripts won a Freedom Foundation Award in 1969. It is *The Voice from the Ballot Box*, sponsored by the Indiana State Legislature and filmed in the Indiana State House, among other places.

Many people have asked if he doesn't find the necessity of traveling from Athens a nuisance. Keller points out that his line of work always involves traveling—on-location work must be done on location whether one lives in New York City or Timbuctu. He estimates that it takes him no longer to drive from Athens to Columbus International Airport than it takes residents of some New York suburbs to drive to Kennedy or La Guardia.

After Keller has finished whatever job has taken him away, he is pleased to return to his studio, located in his home, and the tranquility of life on a wooded hillside in southeastern Ohio. From his studio window he has a view of a small pond, beyond which is a tree-filled valley. Neighbors are close enough in case of emergency but far enough away that none of them infringes upon the privacy of any other. Indeed, in the summer, when the trees are in full leaf, one cannot see any neighboring houses from the Keller residence. The peace is complete and Keller doesn't need the artificial stimulation of a big city's hectic pace in order to keep his creative juices flowing. ☺





Only the Strong-Hearted Need Apply

The romance commonly associated with rowing a boat is almost legend. The mention of rowing conjures up mental images of serenity, lake water lapping at a boat and tranquil figures silhouetted against a background of overhanging willow trees. From the time a child learns the grammar school classic, "Row, row, row your boat gently down the stream. . .," he envisions rowing as an effortless leisure activity guaranteed to capture the heart and while away anxiety and tension. That kind of rowing is part of the American dream.

Rowing as sport is an entirely different kind of activity. Strenuous and tiring, it is not for the faint-hearted. According to Dr. Fritz Hagerman, associate professor of zoology at Ohio University, rowing requires immense amounts of endurance, balance, physical prowess and strength. Hagerman's considerable knowledge about the sport results from his scientific research into its physiological effects upon the human body and his service as physiological consultant to the United States Olympic Rowing Team at the 1972 Summer Olympic Games in Munich, West Germany.

Hagerman talked about rowing, about his research and his experiences in the selection, physical testing and training of oarsmen for the United States' eight-man and four-man with coxswain teams in an interview on the Athens campus.

Rowing is a unique sport, differing from other forms of boating in the type of boat employed and the way oars are attached to the frame. In competition each of the five sweep events, where each man handles one oar, employs a rowing shell. The sweep events include two two-man shells, one with coxswain and one without, two four-man boats, one with coxswain and one without and the premier event, the eight-man boat, always with a coxswain. Rowing regattas also include competition between double and single sculls, where each man handles two oars.

Hagerman describes rowing as a very specific sport which requires a special kind of technique and background. "In terms of technique, just the balance in the boat is fantastic," he notes. "If the average person climbed into a shell he would flip right over because the shell is very narrow, very light and very sensitive to a person's weight."

The eight-man shell used by the United States at Munich weighs about 220 pounds. The single scull weighs a little less than a large rubber raft. Boats average 24 to 30 inches in width except for the cockpit which is wide enough for a man's hips.



Each seat is perched on a slide that moves back and forth as the oarsman rows.

Hagerman's involvement with rowing stems from his scientific research into metabolic responses. His primary interest is to see how muscles work physically and metabolically, how they get their energy. To study this he looks into the metabolic changes in blood and the responses of the heart and lung that occur during physical exercise. With sophisticated instrumentation he measures heart rate and the amount of oxygen the exercising individual uses. These responses are fairly easy to measure and provide a good indication of a person's physical fitness.

Because the heart and lungs are servant systems to muscles, new tests the zoologist hopes to use will microscopically look at the actual muscle tissue to detect changes from the pre-exertion state. As part of this research effort he will test the muscle tissue of Ohio University track team members taken by means of a muscle biopsy. A long hypodermic-like needle with a hollow end and boring apparatus will be inserted directly into a muscle to extract minute pieces of tissue for examination.

Physical conditioning of oarsmen attracted Hagerman's research interest while he was teaching in New Zealand in 1966. At that time he was asked to help develop physical fitness selection tests for oarsmen trying out for the New Zealand Olympic team. The team he helped select rose from mediocrity to respectability in three years, won several international competitions and was favored to win the 1968 Olympics. Some of the crew came to the United States later for academic studies and told a United States Olympic rowing coach of Hagerman's work. The coaches contacted him to develop physical selection and training procedures for the 1968 team. He has worked with United States' teams ever since.

United States rowing is primarily an Eastern and elite sport. Its eliteness derives from the expense and limited access to rowing teams. A good wooden single shell costs over \$1,000. An eight-oared boat ranges between \$3,000 and \$5,000. Because rowing is steeped in the tradition of prep schools, Ivy League colleges and men's athletic clubs, it enjoys greatest popularity on the East Coast. Schools like Harvard, Dartmouth, Pennsylvania and Princeton and clubs like the Union Boat Club of Boston and Vesper Boat Club of Philadelphia produce many of the country's best oarsmen. They begin early in prep schools where rowing is offered and continue to row competitively through college. West Coast rowing is attracting more participants with its relaxed approach to the sport. In the Midwest it gathers little attention.

With the exception of East Germany which has a strong youth athletic program, the United States generally produces younger oarsmen than other countries. Also peculiar to this country is the college rowing background of its teams. In most countries oarsmen come from a variety of occupations including butchers and mechanics.

In six years of work with Olympic teams Hagerman and his associates have come up with a standard oarsman. He is tall and rangy, about 6'3½" tall and weighs about 185 pounds. He also is muscular, has long appendages and a good background of strength. A similarity of build between men helps balance the sensitive boats.

Physical strength also is important in positioning men in the boat. On the eight-man boat for example, the four men in the middle are the strongest. The coxswain sits up front barking numbers in rhythmic succession and steering. He acts primarily as a coach and director for the other oarsmen.

Most shells and sculls are made of wood. At the 1972 games the West German team introduced the first plastic boat into international competition. According to Hagerman they went to great measures to get the boat and did a good job psychologically in trying to convince other teams that it would be a real measure of difference. "It was a much lighter boat but fortunately for us, unfortunately for them, they didn't do as well in the rowing aspects as they hoped," he commented.

Introduction of the plastic boat caused the coaches and administrators to consider standardizing rowing regulations. At present the only standardization involves how much the coxswain should weigh. If he does not weigh at least 110 pounds dead weight in the form of bags of sand is added to the boat to make up the difference.

The method of selecting United States' oarsmen changed dramatically with the Munich Olympics. Prior to this year Olympic coaches selected teams based on the fastest boats in preliminary trials. All oarsmen from the winning boat and usually their coach would go to the games. This year the eight-man boat and four-man with coxswain were chosen on a national team basis whereby the best individual oarsman won berths rather than the best team in trial heats. For the other rowing events teams were selected according to the old team trials method.

The change had two results. Most importantly, it contributed to the best performance by a United States team in years. The eight-man boat won the silver medal and the four-man boat with coxswain placed fifth. No boats selected by the old team-trials method made the finals. Secondly, it divided the United States Olympic rowing coaches and officials because some of them who would have accompanied their own teams to the games now were excluded from participation.

The selection committee chose national team oarsmen on the basis of a number of objective and subjective criteria. How well the oarsmen fared on Hagerman's rigid physical fitness tests, in addition to their performance racing against one another, weighed heavily in the decision.

Essentially, the physical fitness test separated the weak from the strong. The national rowing training camp invited 300-400 men to try out. Each man performed a rowing ergometer test which measures work output on a rowing machine. The





Physiology students exercise on treadmill and bicycling ergometer while their colleagues record metabolic responses for analysis. Physical fitness tests for aspiring United States Olympic oarsmen employ similar equipment specially built to simulate rowing.

ergometer test involves sitting on a seat with a slide and rowing against a resistance provided either by electrostatic instrumentation or by mechanical means like a brake drum with a belt on it. Based on ability to do hard work on this machine the squad was cut down to about 100 men. During the summer months more physical fitness tests were conducted and the final oarsmen selected.

Through the selection procedure the most fit men qualified. All oarsmen in competition must row 200 meters, about six minutes at all-out capacity. Part of Hagerman's responsibility was to prepare them for this grueling task. According to him the most important quality in competitive rowing, everything else being equal, is endurance. Also vital are strength, timing, coordination and the ability to adapt to a team effort. As Hagerman noted, "Rowing is the only endurance type sport where you need a lot of wind and a lot of good heart-lung action... where you have these sorts of variables incorporated with a rhythmic type of sport. The only other team sports which involve endurance and team rhythm are kayaking and tandem cycling."

To help prepare the teams for competition Hagerman concentrated on two factors. The first was development of a supplemental conditioning program for a warming-down effect after rowing with the intent of helping oarsmen recover and eliminate fatigue factors. The second objective was to provide a training program for those days when the team traveled and could not actually row. A running program served both of these purposes.

Additional conditioning involved interval and distance work geared to build up endurance. In the distance work oarsmen would row for a period of 40 to 50 minutes, for 8 to 14 miles. They also would row in short bursts of activity from 100 to 500 meters with a short rest in between and then repeat the exercise. Intervals of rest were mixed with work, varying according to the conditioning level of the subject and the amount of work to be accomplished. By the time the team reached the Olympics Hagerman felt the men were definitely in better shape.

Hagerman believes running is the best all around physical conditioner because of the physiological changes it elicits and its economy. "Physical fitness for the average person," he says, "is the ability to do prolonged work, not to develop large muscles, because what do we have to move around these days. Our physical conditioning should center around having a little extra energy at the end of the day and enjoying it instead of coming home from work tired." Running is the best way of achieving this result "because it is based on endurance, developing a good set of lungs, heart and circulatory system. You don't need a lot of equipment or a gymnasium. You aren't dependent upon anything except your time and your interest."

Speaking briefly about Munich and the future of the games, Hagerman said most athletes compete more for personal excellence than for national pride. While national pride is not missing, the athletes know they are competing as individuals against the best sportsmen in the world. They match skill against skill, not country against country.

He felt the Olympic future is uncertain. The games are very political and very expensive. In view of the tragic death of Israeli athletes in Munich he said, "If violence is even considered, it's not worth the price." ❧

PHOTO BY DON F. STOUT, '81



Opera Theater

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When he played Tevye, the lead role in the Ohio Valley Summer Theater's 1972 production of *Fiddler on the Roof*, Eugene Dybdahl sang of all the things he would do if he were a rich man instead of a poor Russian peasant. As an associate professor of voice and the director of the Opera Theater at Ohio University, Dybdahl isn't exactly rolling in wealth, but if he were he probably would be doing about what he is doing now. He has a strong, excited interest in opera and its production and is enthusiastic about the interest the students have in opera.

Opera, as we know it, grew out of a natural desire to enhance important occasions or dramatic events with music. Religious ceremonies included music and eventually evolved to such heights as Bach's cantatas and Handel's oratorios. Oratorios and works depicting the Passion have a great deal of similarity to opera, differing primarily in subject matter and because they use no scenery, costumes or staging. But as music became more secular these features gained in popularity and the result was opera, defined by Donald Jay Grout in his *A Short History of Opera* as "... dramatic action exhibited on a stage with scenery by actors in costume, the words conveyed entirely or for the most part by singing, and the whole sustained and amplified by orchestral music." Historically, opera has been a display of aural and visual opulence, with kings and princes supporting it for their own enjoyment or as a form of social one-up-man-ship, or both. The extravagance of the productions can be imagined from an excerpt from a letter written in 1716 by a Lady Montague, "... Nothing of that kind was ever more magnificent; and ... I was told, that the decorations and habits cost the emperor 30,000 pounds sterling. The stage was built over a very large canal, and, at the beginning of the second act, divided into two parts, discovering the water, on which there immediately came from different parts two fleets of little gilded vessels ..."

Such lavishness is, of course, expensive, and modern day opera companies are finding it increasingly difficult to survive, particularly if they try to stage new and innovative works. The true buffs of traditional opera prefer to see productions of their



well-loved favorites and often will not support anything else. As a consequence, opera is moving into a new phase. The dramatic aspect of the opera is becoming more important and Dybdahl feels that good acting is the only way to seriously involve people in opera. In response to this trend, the former Ohio University Opera Workshop has been renamed the Opera Theater. Dybdahl is pleased with the change which he thinks more accurately reflects what is happening there.

Its director views the Opera Workshop primarily as a production vehicle for students. Each year between 40 and 50 students, from all over the University and not just from the School of Music, audition for approximately 30 roles. Dybdahl is in the enviable position of choosing the best of what he considers a really fine group of performers. In the three years since his arrival in Athens he has managed to groom the Opera Theater to the point that he is able, with the talent at his disposal, to stage most operas in the standard repertoire. He is frustrated somewhat by the lack of adequate space. The Recital Hall of the Music Building is a small theater and with the removal of enough seats to provide an orchestra pit, the hall will only seat about 150 people. Such a necessarily small audience is not enough to pay for a production unless exorbitantly high prices are charged. Such a practice would run counter to the purpose of the School of Music, which is to provide cultural opportunities for the University community as well as to afford performance opportunities to the music students.

The music students at Ohio University, according to Dybdahl, are "an interesting, enjoyable, challenging bunch." Many of them are from large metropolitan areas and have had extensive exposure to the arts prior to their coming to Athens. As a consequence, they are sophisticated enough to recognize quality or the lack of it. One pleasant surprise among Dybdahl's students was the selection of one of them, Laurel Lea Schaefer, to be the 1971 Miss America. Long before her sudden rise to fame Dybdahl had appreciated her as an excellent, dependable student who learned quickly. While at Ohio University she performed in two major roles — the female lead in *The Marriage of the Grocer of Seville* and Susannah in *The Marriage of Figaro*. Dybdahl commented that he was pleased to learn the admiration was not one-sided. He recounted an incident in which he heard his name called across the crowded Chicago air terminal and looked up to recognize Miss Schaefer hurrying across to him. She introduced Dybdahl to her manager as one of the finest teachers she had had at Ohio University. But even in the face of such an accolade Dybdahl feels the need to keep himself up-to-date just to keep one step ahead of his students. He has no opportunity to sit back and rest on his laurels and he thrives on the fact.

The artistic freedom of Ohio University is another stimulus for Dybdahl. In visiting other Midwestern universities he had found that this freedom, which is taken almost for granted here, is not common to them all. Probably as a result of its liberal attitude, Ohio University has fine programs in film and dance, as well as a nationally known School of Theater. All of these areas work in close conjunction with each other, each giving support to the other. Next year the Opera Theater and the School of Theater will collaborate on one major opera and one musical comedy. Either undertaking might be too much for either group, but by combining their talents and resources the Opera Theater can

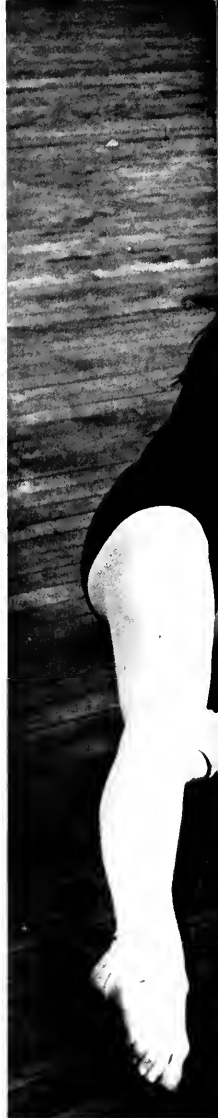
concentrate all its efforts on the musical drama aspects while the School of Theater brings to bear its expertise on the technicalities of staging.

Dybdahl said that the Opera Theater is not involved with rock opera and will not be. He pointed out that rock opera is not true opera and the artistic, vocal and dramatic requirements are vastly different. But even if Dybdahl were willing to stage a rock opera he doubts that he would be able to persuade any of his serious music students to audition for it. Fine singers will not risk damaging their voices with the shouting and screaming which are a recognized part of rock opera. Furthermore, the accompaniment is radically different. Rock opera depends primarily on guitars and electronic instruments while true opera is performed with an orchestra.

Dybdahl came to Athens in 1968 from the University of Michigan where he had just finished his doctorate. He said that Clyde Thompson, director of the School of Music, was the major reason for his coming here. The young, aggressive, interesting music faculty was another reason; and a third reason was the size of Athens. Most of the music faculty are performing musicians and can empathize with the students on the problems they encounter in preparing for a recital or concert. Dybdahl, a fine singer, is currently involved in singing opera roles and oratorio in addition to his part in *Fiddler on the Roof*.

The size of Athens, though a drawing card for more than one faculty member, is a two-edged sword for performers, according to Dybdahl. Because the University is the sole source of cultural activity in Athens, either through its program series which bring in performers from outside or through the recitals and concerts of its students and faculty, almost any performance is assured a sizeable audience. Walking on stage to perform to a full house is very gratifying and bolsters the confidence of any performer. But knowing that there will always be a good attendance, barring blizzards, floods or famine, presents the omnipresent danger of taking the audience for granted. Another drawback to the limited cultural opportunities is that the students have few occasions to watch professionals perform. For example, a tenor-in-training learns much about breath control and presentation by watching a professional tenor actually doing the things the student has been told to do. Such things can be taught, of course, but almost all of us have had the experience of seeing something done which we had only had explained before and exclaiming, "So *that's* what he meant!" This valuable teaching tool is only intermittently available to Dybdahl and his opera students, but meanwhile they continue to avail themselves of the many performance opportunities open to them, bringing a great deal of pleasure to the University community in the process. ♪







Dance Photography by Inge

These students from the School of Dance are members of the Ohio University Dance Company which gives performances in various communities in southeastern Ohio.



Miss Frances Inge came to Ohio University in 1970 as assistant dean of the College of Fine Arts. Prior to that, from 1964 to 1970, she had been in Europe as a crafts director in the United States Army Special Services Division. During her stint in Europe she took up photography as a hobby and now describes her work as that of a serious amateur. However, she holds the BFA in pictorial design from the Carnegie-Mellon University and considers herself primarily as a painter. She has exhibited paintings in Tampa, Florida; Washington, D.C.; Schleier Gallery, New York; the University of Erlangen, Germany, and several small private galleries in Germany and Holland.



Learning Beyond Familiar Walls

19

In one room of former Putnam School tiny fingers manipulate wooden blocks with all the dexterity and strength that can be mustered by craftsmen aged five months to 17 months. Their primary objective: to pound, flatten and poke holes in globs of homemade play dough.

Down the hall another group of artists, ranging in age from 18 months to three years, works with the same material. But their skills are more advanced. They use sophisticated tools like pancake turners and potato mashers to pound, roll, stretch and mold the play dough into delectable imaginary delights like peanut butter, beans, ice cream and cupcakes.

A group of three-year-olds in another room is busy creating esthetic marvels from elusive soapsuds, a difficult but exciting task. The oldest children, from four through five years, are outdoors using the accumulated prowess of their age to challenge the playground equipment.

Despite the level of their skills and activity these children all have something in common. They are having fun, they are learning and they are daily participants in the Ohio University Child Care Center.

The 78 children in the center are part of a new and burgeoning break with traditional child care arrangements. Rather than spending most of their waking hours with their mothers or babysitters the children come to the child care center for four to ten hours a day. Here they engage in a comprehensive program designed to help their social, intellectual, emotional and physical development. Periods of creative development, arts and crafts and outdoor play are separated by rest times to avoid overloading the children. Other periods of individual free play allow each child to pursue his own special whim or interest.

Reaching Beyond Customary Roles

The center also represents a break with tradition for the parent users, especially the mothers. For them it offers quality child care with the accompanying freedom to go beyond the home for personal fulfillment of professional, psychological and economic needs. To serve the needs of these parents and their children is the primary goal of the University child care center.

The second objective is to provide a realistic training site for students in child development, psychology, education and social welfare. Each day assigned students observe and analyze the children's activity ranging from behavior to eating habits as part of their course requirements. Most of them eventually will be working in similar day care situations throughout the country.





In supporting the child care center the University reached beyond the customary role of a noninvolved employer to recognize the need for child care facilities for its employees, students and the townspeople of Athens. The decision did not come with spontaneity or ease. A year of prodding, persuading, planning and negotiating was necessary before the center could open.

The impetus for University supported child care came from two interested groups of women, the Women's Collective and the Athens Day Care Committee. Their separate efforts to secure a facility for children proved unsuccessful. In the fall of 1971 they joined together to demonstrate their plight through a "baby-in" at the Leete House of the Episcopal Church. The following week University President Claude R. Sowle acknowledged their efforts by appointing a task force to study the need for day care and possibility of funding a center. While Sowle personally favored establishment of an on-campus center, some administrators and faculty opposed the idea.

A major controversy concerned whether the University had a responsibility to provide child care facilities for students' families. Some policymakers also privately questioned woman's role in the home, but their anxiety remained subdued. Final site approval was given in late May and Sowle appointed Julia Nehls, associate professor of home economics and former head of the Putnam Nursery School, to direct the operation. Nehls has taught at Ohio University since earning a master's degree in child development here in 1950.

The budget committee settled on a funding figure of approximately \$87,000. The University contributed \$54,000 while parent fees generated the remaining \$33,000.

Need constituted the primary criteria for selection. All children of one-parent families were admitted as well as all children whose family income, at the time the selection was made, fell below \$7,000. The selection committee attempted to integrate the enrollment according to sex, race, age, income and parental status (faculty, staff, student or non-University community.) Before the child care office stopped filling requests more than 150 applications were completed and returned. Seventy-eight children were accepted and an additional 75 placed on a waiting list.

The enrollment includes 35 faculty children, 23 student, 11 nonacademic staff and 9 town children. More low income children could not be included because of the \$33,000 needed from parent fees.

Parents pay a fee determined from a sliding scale based on income. The lowest fee is \$5 per week for one child in attendance full days, five days a week with a parental income below \$3,000 yearly. The highest fee is \$26 per week for one child, full days, five days a week, from parents earning more than \$15,000.

The selection committee made a determined effort to accept children from varied backgrounds. Sowle, Nehls and the committee all felt the University should particularly attempt to involve non-University children in the center. Expressing her feelings about the mixed environment Nehls said, "I feel it's better for the children if they have different kinds of people, children from different areas in their rooms. I think we need a cross section: black, white, oriental as well as high, low and middle income."

Children Respond to Warm Environment

Flexibility pervades all activities of the center. Julia Nehls smoothly directs a core staff of ten including teachers, a licensed practical nurse, secretary, cook and part-time nutritionist. Teacher backgrounds include university and vocational college degrees in child development and recreation. In addition, the director coordinates student teachers and nearly 100 student observers from classes in child development, nutrition, psychology and social welfare.

While each staff member performs a designated job she also can be found helping out in another room when her own group of children is resting. Recently, at the center the secretary was seen answering phone calls with the animated assistance of a six-month-old infant on her lap. At the same time the director was in the kitchen helping paint chairs for the reception area.

Although the daily program follows a predetermined schedule the structure is not rigid. Organized group activities in creative development including arts and crafts are intermingled with periods of individual free play, rest and outdoor exercise to provide a balanced program.

The program attempts to accommodate each child as an individual with separate needs that may vary from the ongoing activities of his assigned group. For example, Nehls keeps a few toys in her office for special child visitors. As she explains, "If a child needs to be by himself and comes in here for solitude, we let him do it."

The staff aims to provide exciting and fun learning experiences without overstimulating the children. A recent visit by a state patrolman stirred the three-year-old group into high gear. But to avoid overburdening them, quiet periods of discussion and rest preceded and followed his appearance. As a result, the children were able to relax without working themselves into a frenzy that may have caused a deterioration in everyone's mood for the remainder of the day.

The children respond well to the stimulation and warmth evident in the center. After the first few opening weeks their trepidation about coming gave way to obvious dawdling at closing time. In the infant group children are held, cuddled and



comforted whenever they need it. Both staff and student observers talk to the infants and work with them on motor skills and new toys and materials.

Older children also share in the warm environment. If a child is having a particularly out-of-sorts day he receives special attention to try to resolve the cause of his poor mood. In recent weeks some children experienced difficulty in falling asleep at nap time. To overcome the problem, older children assumed the task of rubbing younger children's backs. The result: they all fell asleep together.

With their professional training the staff is aware of what stage of development the children should be experiencing. Using this knowledge they gear activities to encourage appropriate new skills. However, if a child does not master the assigned project he is not chastised for his performance. Rather, he receives positive feedback on what he did accomplish.

Parents Pleased With Staff and Program

The teaching staff talks over each child's activities and responses with his parents in an effort to integrate day care activities with home life. In addition, parents are invited to observe the children in their rooms at any time.

Parents are involved in the center in other ways, too. Along with academic department and administrative representatives parents elected by their peers serve on policy and program boards.

The policy board makes recommendations to the director on matters of operation including fee assessment, selection criteria, general gripes and similar concerns. The program board contributes substantive suggestions about the educational program of the center.

Most parents respond favorably to questions about the child care center. The following comments are representative of parent sentiment toward the staff and program.

A couple who drives several miles each day to classes and her job as a secretary at Hudson Health Center and his at the telephone company feel the center is an optimal arrangement for their two children. Previously they relied on a babysitter and then spent much of the day worrying about the children's welfare and what kind of values they would learn. "Now," says the mother, "my job has improved because I can concentrate fully on my work. I know my children are thriving so I can go to work and think only about my job."

In another family the father is an instructor in the Government Department and the mother works part time as a secretary for the Lutheran Church. Prior to the center's opening their two sons, ages 10 months and almost three years, went to a day care home. The mother found the care erratic but had reservations about



Speech and hearing tests serve children and provide practical learning experience for University students.



her youngest child being in an institutional setting. Now she lauds the operation stating, "What's impressed me is its professional commitment toward caring for the children. With the day care home we took potluck. Often the sitter spent much of her time trying to squeeze in housework or dinner preparations. The children were left alone to watch television or otherwise entertain themselves. At the child care center the staff dedicates full time to caring for the needs of the children without other concerns competing for their time."

A third family in which both father and mother are students finds the social environment and sliding fee scale particularly appealing. They feel their three-year-old son needs an organized play group to help him develop social relationships but are limited to a \$3,000-a-year teaching assistant's income. The center satisfies both their concerns and frees the mother to pursue a master's degree in child development. She feels the children are getting better, or at least equal, care to that they would receive at home. She believes the abundant affection, the individual attention and the lack of rejection and forced activity are especially noteworthy.

Effects of Child Care Centers on Children

How will their day care experience affect the children? How will they be different than if they remained at home?

According to director Nehls the children are likely to possess better social skills, be better able to relate to new and different people. Dr. Michael Hanek, director of the Ohio University Center for Psychological Services, agreed saying, "Through exposure the child care center is teaching children to react to a variety of people. This experience probably will make them more outgoing, more interested in acting and interacting with people, less interested in objects."

Hanek feels too many variables are involved to make generalizations about the psychological effect of day care centers. Because a center has earlier access to children, he noted, it exposes them to someone's interpretation of society's culture sooner. That interpretation varies among parents, babysitters and child care centers. How the child is affected depends upon the interpretation to which he is exposed. Family attitudes are a critical variable. For example, if a mother is more satisfied with herself because she works at a job in addition to rearing children with the aid of day care, this good feeling will be conveyed to the children. On the other hand, if she is frustrated by remaining home all day with them a negative feeling will be passed on.

Day care in itself is neutral says Hanek. Its effect depends on the individual perspective and skills of the staff as well as the personal attitudes and capabilities of the involved parents.



A Growing National Phenomenon

Historically, care for children by someone other than a parent is not new. Neolithic woman probably asked a friend to watch her child while she fetched stones to make tools. However, the concept of child care outside the home has changed greatly over time.

In modern times three types of child care arrangements have dominated: a babysitter in the child's home, a day care home where one woman generally watches several children and, most recently, day care centers. In the United States day care centers existed in the 1930s when such institutions as Jane Addams' Hull House gained recognition. Still, most of the population generally disapproved of care in centers. Many women felt guilty about leaving their children to seek work, regardless of their economic need.

Today, attitudes about women's role in the home are changing. Many women find the professional and psychological satisfaction of working encourages a better relationship with their children. Their personal satisfaction has a positive effect on their capability as parents.

The number of women in the labor force as a percentage of the female population increased from 31.4% in 1950 to 34.8% in 1960 and 42.5% in 1970. At the same time the number of married women working as opposed to doing other things jumped from 11.9% in 1950 to 18.6% in 1960 and 29.6% in 1971. Of these women 1,399,000 had children under six in 1950. In 1971 women in that category numbered about 3,674,000.

Day care as a desirable means of helping parents rear children does not enjoy universal acceptance. President Richard Nixon vetoed the Child Development Bill in 1971 which earmarked a substantial amount of federal monies for the establishment and operation of comprehensive child care centers. His conjecture that day care centers would destroy the American family structure is shared by many. But early childhood development experts and psychologists in the Department of Health, Education and Welfare disagree with the President, noting in a publication on day care:

"Day care programs for infants and toddlers, organized with great care and operated with vigilance, reflect a blending of the conviction of the importance of experiences during the first few years of life, concern about the possible harmful consequences if these programs are not well carried out, and satisfaction that such programs meet an acute family need and serve a major function in strengthening family life."

Industry is beginning to act on the belief that quality day care may benefit them as employers. In Baltimore the Amalgamated Clothing Workers of America, with financial support from 70 clothing manufacturers in the area, opened four day care centers with a combined capacity for 1,000 children. Mothers pay about

\$5 a week for child care that is reliable and much better than their previous arrangements.

While no hard core data is yet available on rates of absenteeism, turnover, productivity, the number of job applications or community relations, most industries that provide day care find the effects beneficial to them. Increasingly, employers receive pressure to provide day care as an employment related service.

According to a statement of principles issued by the Office of Child Development in the Department of Health, Education and Welfare:

"Industrial and business world employers have a moral responsibility to help provide plans for working arrangements for mothers of young children. This enables them to fill their roles as parents and not sacrifice the quality of life for their families by being forced to lose the economic advantages their employment gives. Employers will strengthen their contributions to communities by supporting the development and maintenance of varied and comprehensive day care programs. This will permit parents to make a choice suited to their family needs while securing for their employers a stable productive manpower resource."

The demand for day care services will likely increase in the years ahead. Pressures from the poor and minority groups who cannot seek gainful employment without adequate child care arrangements, from the women's liberation movement and from the middle class who believe day care in itself is good for their children, will provide the impetus for growth. Already licensed day care centers have increased dramatically. Government statistics show licensed or approved centers numbered 13,600 with a capacity for 517,900 children in 1969 as compared with 10,400 centers with a capacity for 393,000 children two years earlier. These statistics reflect in part tightened requirements for licensing but also indicate supply expanding to meet demand.

Concurrent with the increase in centers will be new university and vocational school programs in day care training. It is doubtful that either parents or licensing agents will allow day care centers to operate without trained personnel. At the present time day care as a college curriculum is just beginning to unfold. In an era of decreased job options for college graduates it looms as a promising field.

The future of Ohio University's Nursery Child Care Center is uncertain. In a year of financial crisis it will compete with other programs for a smaller pool of money. But with the possibilities it offers for training college students in an area of increasing demand and with the satisfaction and confidence evident among parent and child users, it holds promise as a model arrangement for aiding child rearing in a rapidly changing world. ♪





26 | Postscript to the Peter Principle

If the 'incompetence' argument is basically valid, why do not more things go wrong?

Foreword

The most unacceptable truths about ourselves are often presented to us in the form of caricature, irony, or satire. The satirist seeks to communicate his ideas to the perceptive reader who understands the purpose and who is willing to face the truth about himself. In accepting Peter's argument as a serious attempt to tell us something about ourselves, this author finds it necessary to explain why most organizations re-

main efficient in spite of the Peter Principle. He examines our organizations and discovers a number of "productive parahierarchies which provide the glue that holds our society together."

Mr. Tracy is Associate Professor of Management, College of Business Administration, Ohio University, where he teaches courses in industrial relations organization theory, and organizational behavior.

"In a hierarchy, every employee tends to rise to his level of incompetence."¹

The arguments for accepting the Peter Principle as a serious attempt to tell us something about our own society, at least, are quite strong. The achievement orientation of Americans, our professed ideal of equality, and our high mobility, all contribute to an expectation that a man, unless he is obviously incompetent, will soon be promoted. Furthermore, men are usually promoted on the basis of faith that training and experience will develop their "potential," rather than on any hard evidence of their ability to handle the new job. It only requires a slight weakening of our faith in the powers of education to realize that sooner or later, and probably sooner, most men will come to rest in a job that is too much for them. Moreover, our eyes and ears, if not our very souls, confirm that many men have already reached that position.

The difficulty in accepting the Peter Principle at full value lies in the fact that, despite the plausibility of Peter's argument and the observed incompetence of many employees, our organizations still seem to function well. Workable decisions are made, orders are transmitted and carried out, and as often as not the product is delivered on time. The cynics amongst us may cite the inevitable foul-ups that occur—the Edsel, the SST, the maxiskirt—but these are the exception rather than the rule. If such mistakes were the rule, they would not provoke as much anger, chagrin, and laughter as they do. Therefore, we are faced with the question: If the Peter Principle is basically valid, why do not more things go wrong?

Peter attempts to account for the fact that much work still gets done by stating that "work is accomplished by those employees who have

1 Laurence J. Peter and Raymond Hull, *The Peter Principle: Why Things Always Go Wrong* (New York: Bantam Books, Inc., 1969), p. 7.

not yet reached their level of incompetence."² Somehow this argument is not convincing. The number of posts filled with such still-competent employees does not seem sufficient to account for the observed level of efficiency in our organizations. The accumulation of deadwood, particularly at the executive levels of our hierarchies, should be so great as to preclude any effective overall direction of the enterprise. Thus we have an anomaly; the evidence fails to support the principle.

If one accepts the basic validity of the arguments for the Peter Principle, such a contradiction is intolerable. The obvious conclusion is that our organizations somehow are able to retain a cadre of competent people to whom the Peter Principle does not apply. These people cannot be part of the organizational hierarchy, for there the Peter Principle operates at full force. And yet, to be in a position to carry out the necessary functions of planning, directing, and controlling the enterprise, such people must reside at all levels of the administrative hierarchy. What class of people fits this description? The obvious answer is *secretaries*.

Secretaries permeate all administrative levels of business, government, schools, nonprofit organizations, and so on, forming what I call a "parahierarchy" of administrative talent. (I define a parahierarchy as a grouping of people connected in tandem to a ranked or ordered group; or, more simply, a grouping of people in positions parallel to a hierarchy.) Whenever an executive falters, either because he has reached his level of incompetence or because he is moving up so fast that he does not have time to learn his job, his secretary is ready and waiting to take over. But what makes a secretary competent when her executive counterpart is not?

A subordinate class

The answer comes from Peter's analysis that the introduction of class barriers into a hierarchy greatly retards the growth of organizational incompetence. Members of a subordinate class, restricted from entry into the higher ranks, find little opportunity to advance to a position in which they would be incompetent.

In our society, women form just such a subordinate class. No matter how competent they are, women are not expected to aspire to a posi-

tion higher than the level of secretary, nurse, or elementary school teacher (at most, secondary school or women's college teacher). There is a distinct class barrier that prevents most women from rising to executive positions; thus they are expected to be satisfied to remain in, and efficiently fill, the same position year after year. Men, on the other hand, are expected to advance rapidly; and it is this cultural expectation of regular advancement for men which provides much of the motive force for the Peter Principle.

But, one may argue, there are still several ranks within the class of secretaries—file clerks, typists, stenographers, receptionists. In addition, secretaries hold levels in their parahierarchies corresponding to the hierarchical levels of the executives they serve. Does not a secretary tend to rise to her level of incompetence within her own class?

Cultural & other constraints

I have concluded that the answer to the preceding question is *no*, and for four reasons.

In the first place, since women are seldom permitted to take positions such as business executive, physician, engineer, or college professor, there exists a large pool of talented women from which to draw.

Second, as previously noted, there is no cultural expectation of a regular or rapid advancement for women. Women are generally assumed to be flighty, irrational, and interested only in marriage and producing babies; they are not promoted until they have proven otherwise.

Third, the pay differential between different secretarial positions is not nearly as wide as that between the corresponding executive positions. Consequently, the monetary incentive for advancement is not as great.

Finally, and most importantly, the secretarial parahierarchy is not a true hierarchy; it would not stand without the supporting structure of the executive hierarchy. A true or vertical hierarchy is always buttressed by a system of formal authority, in which each level directly bosses the level below and, indirectly, all lower levels. The motivation to move up in the hierarchy is strengthened by the desire to get one more level of authority off one's back.

But secretaries are bossed by the executives they work for, and the load gets no lighter—in fact, it may even get heavier—as they move up. Consequently, the authority structure provides no motivation to try to rise in the hierarchy.

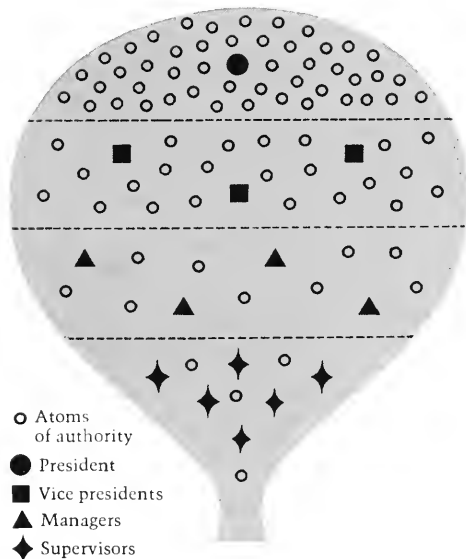
Since secretaries have no formal authority over one another, the secretarial parahierarchy contains only one real level of authority. The secretarial parahierarchy is thus an example of a *horizontal hierarchy*. (A horizontal hierarchy may contain many positions, but they must all be on the same level of formal authority.)

Natural laws of authority

In order to fully understand the difference between vertical and horizontal hierarchies, it is necessary that we digress for a moment into a discussion of the natural laws of authority. Consider these two principles:

1. In its free state, authority is a lighter-than-air gas. When introduced into an air-breathing

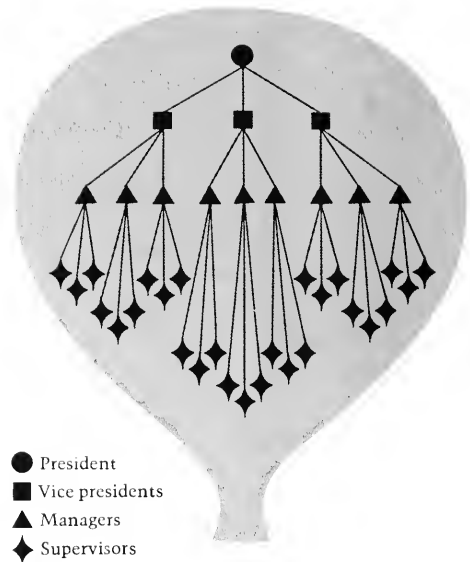
Exhibit I. Distribution of gaseous authority in a vertical organization



vertical organization, gaseous authority tends to rise to the top of the organization and expand, producing the structural appearance shown in *Exhibit I*. The buoyancy of gaseous authority lends stability to this top-heavy structure.

2. If allowed to remain in one position for any length of time, authority crystallizes into a hard rod-like substance called formal or bureaucratic

Exhibit II. Crystallized structure of a vertical hierarchy



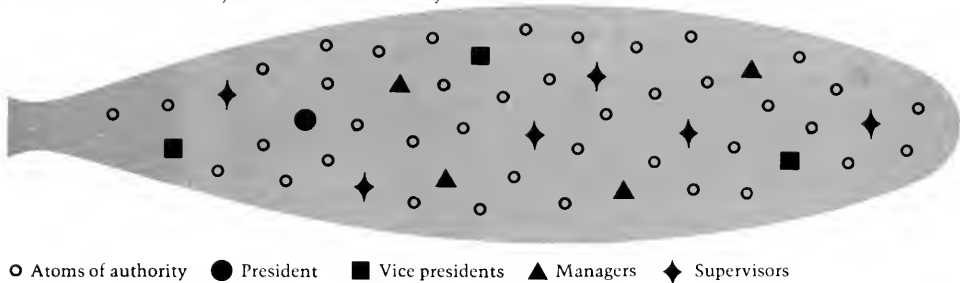
authority. The crystalline form of authority adds strength to the structure, but also reduces its buoyancy.

When authority crystallizes, the organization becomes a vertical hierarchy, as shown in *Exhibit II*. The residual buoyancy in a vertical hierarchy is provided by achievement-oriented members who, like authority, tend to rise to the top and expand.

A horizontal hierarchy seeks to avoid the crystallization of authority as well as the concentration of authority at the top. These problems are solved by eliminating any indication of "top" in the organization, and by keeping both authority and positions in constant motion. Thus a horizontal hierarchy has the structural appearance shown in *Exhibit III*.

The natural laws of authority make it evident that a horizontal hierarchy is an inherently unstable structure. Authority constantly seeks a direction in which to rise, and any hint of such a direction will cause the atoms of authority to surge toward one part of the organization. This situation is aggravated by the natural tendencies of achievement-oriented members. In order to avoid crystallization of authority, it is necessary

Exhibit III. Structure of a horizontal hierarchy



to keep the atoms of authority in constant flux.

Fortunately, in the absence of a sense of vertical direction, authority atoms exhibit a natural random three-dimensional movement. Thus the key to maintaining a horizontal hierarchy is to suppress all indications of vertical directionality in the organization. This is accomplished by scrambling the positions and keeping them from forming in any sort of order.

(It might seem like a simple and attractive alternative to provide an opening at the top of the organization which would allow upwardly mobile people and gaseous authority to escape. However, the organization needs motivated people and some form of authority.)

It is the lack of vertical directionality which prevents the Peter Principle from operating in a horizontal hierarchy. There is no way to rise if one does not know which end is up. With no clear indication of "higher," the only motivation for a man to move from one position to another is to find a position more suited to his talents. One explanation for the class barrier effect noted by Peter is simply that, in the extreme case, class barriers segment society into a series of horizontal hierarchies.

According to Peter, the existence of a class barrier should also increase the efficiency of the higher ranks because it reduces the number of levels in the upper hierarchy. Unfortunately, in this case, the barrier does not exist for the dominant class; men may assume positions ranging from ditch digger to President of the United States. Only in positions held by women is the operation of the Peter Principle held in check.

Similar structures

After having discovered the secretarial parahierarchy and noted its significance, I was deter-

mined to see if there were similar structures elsewhere in our organizations. I looked for positions commonly filled by members of a subordinate class. I found that women again figure prominently in medical and educational parahierarchies. Nurses are in a position to monitor and correct some of physicians' worst abuses. Primary and secondary school teachers implant the study skills with which many college students manage to learn in spite of the tutorial incompetence of their professors.

But women are not the only subordinate class members protected from the ravages of the Peter Principle. As farms have outgrown the competency of their managers, they have increasingly come to depend on the experience and skills of a cadre of black and Chicano farm workers. Mass-production industry has relied from the start on the cheap but skilled labor of ethnic and racial minority groups, particularly new immigrants. Restaurants prosper because of the efforts of foreign chefs and waiters. Hospitals are held together by a combination of refugee doctors, female nurses, and black or immigrant attendants, cooks, and laundry workers. College-trained engineers and architects rely on the skills and experience of nondegreed designers and draftsmen.

In some of these cases, the parallel linkage to the executive hierarchy is less obvious than it was for secretaries. In industry, for instance, we usually think of supervisors or foremen as being at the lower end of the executive hierarchy and, therefore, as part of the Peter progression. But there is a real barrier between the blue-collar and white-collar positions. It is not now, and never has been, common in U.S. industry to rise from the ranks into the executive hierarchy. The position of supervisor has been virtually the top of the line for a man without a college education.

Consequently, we have a large pool of expe-

rienced leaders who cannot rise to executive positions, and a group of inexperienced executives attempting to run the show. The supervisor must perform the doubly difficult task of shielding his men from the incompetence of the executives while making the necessary decisions to maintain the flow of production. Fortunately for us, he is usually equal to the task because he has not been allowed to rise to his level of incompetence.

Productive parahierarchies

In addition to the fact that the parahierarchies just mentioned are composed of members of subordinate classes, and that they have little or no authority structure, they share one other important characteristic. They perform the productive work of their respective organizations in spite of rampant incompetence in the dominant hierarchy. For this reason, I call them "productive parahierarchies."

The old saying that secretaries really run the company, or that nurses really run the hospital, is no joke. It is such productive parahierarchies which provide the glue that holds our society together. Without them, business, government, medicine, and education would long ago have collapsed under the weight of cumulative incompetence.

A certain faith in social Darwinism leads me to suspect that the formation of these parahierarchies was not accidental. In fact, our greatest civilizations seem always to have been built on the bedrock of a subordinate class.

The civilization of ancient Athens arose from the leisure time generated by slave labor. Slaves were acquired as a result of various successful military campaigns, and it was these slaves who tilled the fields, built the ships, and baked the bread while citizens dabbled in philosophy, mathematics, and politics. When Rome conquered Athens and much of the rest of the Mediterranean world, she adopted the same system. Rome even used captured slaves to educate her young, while Roman citizens devoted most of their time to politics or to further conquest.

In the early American South, a genteel aristocracy was supported by Negro slave labor which worked the land and ran the household. In the North, industry prospered from the cheap but competent labor supplied by successive waves of immigrants. As these captive sources of competent labor dried up, America turned to her women to fill the gap. This was accomplished

by liberating women enough to let them out of the house to work, but not enough to encourage them to make a career of it. Even today, in addition to women, we tend to hold down certain other groups, such as blacks and Chicanos, in order to retain a supply of competent labor.

What I am suggesting, then, is a general tenet which I shall call the Productive Parahierarchy Principle:

In order to survive, a dominant hierarchy must create and maintain a parahierarchy composed of members of a subordinate class to whom the Peter Principle does not apply.

If this principle is correct, we are today faced with a grave threat to our well-being. The subordinate classes are demanding that they be admitted into the Peter progression, and our own professed belief in equality seems to have trapped us into permitting this catastrophe to occur. We are even abetting the process of our demise with mass college education, civil rights legislation, equal employment opportunity pledges, and recruitment of executives from minority groups. The problem is not that members of the subordinate groups do not belong in the executive hierarchy, but simply that there will be no one left to do the productive work. Black Power and Women's Lib may be proper expressions of rights, but they are bad economics.

Look around you. There are no longer any good boxers; nobody is hungry enough to make a living getting his brains beaten out. What ever happened to the Irish cop on the beat, or to the Italian shoe rebuilder? U.S. industry is already slowing down because the flow of skilled immigrant labor has decreased. Now, if Women's Lib has its way, we will lose our supply of good secretaries.

We are suffering from the same weakening of the supporting superstructure of parahierarchies which eventually brought ancient Rome to her knees. As the course of conquest slowed to a stop, the supply of slave labor dried up and the productive component of Roman society disappeared, leaving behind a rotting hulk like a whale stranded on a beach. So, too, our productive parahierarchies are slowly being drained of their most talented workers.

Horizontal hierarchies

The Productive Parahierarchy Principle indicates that vertical hierarchies cannot survive without

holding some portion of the population in bondage. A logical conclusion would be that such movements as equal opportunity, feminist, employee participation, and others must be prohibited in order to preserve our organizations.

But wait! There is one other possibility. We could subvert the Peter Principle by redesigning our organizations around horizontal hierarchies.

It is no new idea to Communist ideologues that a classless society requires horizontal hierarchies. The Red Chinese army, for instance, reportedly has operated on this principle for decades. However, the Russian communes did not remain horizontal for long, and various utopian societies have also attempted to operate as horizontal hierarchies without notable success. The failure of these attempts raises the question whether the horizontal hierarchy is a viable form of organization in Western society.

Can they work?

Some hope for the successful functioning of horizontal hierarchies in Western society is provided by the example of the Israeli kibbutz. Naphtali Golomb pictures the kibbutz manager as an elected official with a three-year, nonrenewable term, without formal authority or control over sanctions, who must rely solely on his personal prestige, technical know-how, and powers of persuasion to do his job.³ That certainly fits the description of a horizontal hierarchy, and kibbutzim have survived and prospered for decades.

However, as kibbutzim have moved from an agricultural base into manufacturing in recent years, the need for highly trained technological experts has increased. Because of the length and cost of their training, these experts are given permanent positions and powers. Thus it appears that the kibbutz is grafting a parahierarchy of technicians onto its basic horizontal hierarchy. It remains to be seen whether such a hybrid structure can succeed in the long run.

As for organizations in the United States, a number of companies, including Texas Instruments Incorporated and Avis Rent-A-Car System, Inc., have experimented with eliminating certain executive perquisites such as special parking places, private secretaries, and so forth.⁴ Nonlinear Systems even went so far as sharing decision-making powers with its production workers.⁵ These are moves in the right direction, but it has yet to be shown that business organizations can operate successfully without any

authority differentials between such positions as president and production worker.

Will the dominant class, which may soon include everybody, be willing to forgo dominating? Can the activities of a large organization be directed and coordinated without a formal authority structure? And would anyone be willing to prepare for positions which require years of training, if these positions offer the same status, authority, and remuneration as something much easier? The latter two questions, at least, can be answered.

In regard to the formal authority question, if horizontal hierarchies had to be directed by a pure democratic process, they would be very inefficient. But we need not rule out all forms of authority to maintain a horizontal hierarchy. It is only necessary to avoid those forms in which authority inheres in the position rather than in the man.

Thus authority based on charisma or expertise is acceptable, so long as it is not formalized. The difficulty with unformalized charismatic or technical authority, for purposes of directing the organization, is that such authority is apt to be fragmentary and shifting. One must find, not just authority, but the *right* authority to be in accord with one's needs.

The solution of this problem would require either some formal designation of specific authority, which might destroy the fragile structure of the horizontal hierarchy, or else the development of supercompetent people who can satisfy all authority needs. However, if the right charismatic or technical authority is not easy to locate, there is at the very least a compensating advantage: by definition, such authority is competent.

Regarding the question of motivation, at first glance it appears that the only basis for motivation to develop one's potential in a horizontal hierarchy would be self-actualization. All pay and authority differentials between positions would have to be eliminated to avoid any indication of positional rank, and this would appear to remove all motivation based on needs for money, power, or prestige. However, we have already noted that there may exist authority differentials among the people, which would lead

3. "Managing Without Sanctions or Rewards," *Management of Personnel Quarterly*, Summer 1968, p. 22.

4. See M. Scott Myers, "Conditions for Manager Motivation," *HBR* January-February 1966, p. 66, and see also Robert Townsend, *Up the Organization* (New York, Alfred A. Knopf Inc., 1970), p. 175.

5. Arthur H. Kunloff, "An Experiment in Management—Putting Theory Y to the Test," *Personnel*, November-December 1963, pp. 15-16.

to differentials in power and prestige. Likewise, there is no reason why there should not be pay differentials based on how competently a person fills his position.

The key is that these differentials in pay and authority must be based on the skills of the person relative to his position, rather than on the position itself. Such differentials would motivate a person to find the position in which he is most competent, rather than the "highest" position. Earlier utopian experiments may have failed because they attempted to do away with all differentials in authority and rewards.

One may wonder whether horizontal hierarchies are really hierarchies at all because hierarchies are by definition supposed to be ranked or ordered. Now it becomes clear that there are ranks in a horizontal hierarchy, but that these ranks are based on competence within each position rather than on the position per se.

The foregoing analysis leads to what I shall call the Horizontal Hierarchy Hypothesis:

In the absence of productive parahierarchies a properly designed horizontal hierarchy will be more efficient than a vertical hierarchy.

A properly designed horizontal hierarchy is one in which authority and pay differentials are attached to the degree of competence within each position. Under these conditions, a horizontal hierarchy will be more efficient because people

will be attracted to the positions in which they are most competent.

How do we get there?

I have ignored some very real problems of who determines competence within the position and how it is measured, but these are details beyond the scope of this paper. An even greater problem may be: How do we convert our vertical hierarchies into horizontal ones? Will high-ranking executives be willing to let their status float to its proper value level in the organization?

My only answer is that they may have no choice, if they do not want to go down with the ship. When the subordinate classes achieve full equality with the dominant class, productive parahierarchies will disappear and our vertically oriented organizations will become vulnerable to competition from an efficient new breed of horizontal hierarchies.

The situation is clear. Vertical hierarchies cannot survive without holding some portion of the population in bondage. If continued suppression of minority groups and women is unacceptable to us—that is, if we lack the stomach for it—we must find some efficient way to reorganize ourselves. I believe that horizontal hierarchies offer a viable alternative. The choice is ours, but we had better make it soon, or our organizations may peter out.

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Lane Tracy, who describes himself as an associate hierarchaeologist, teaches management and labor relations in the College of Business Administration. He is an associate professor and earned his PhD in business administration from the University of Washington. He gave a dinner presentation to the Ohio University Administrative Interns in late November and a paper which he presented to the Academy of Management during the summer of 1972 will be printed in the forthcoming Proceedings of the Academy.





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